

## CLAIMS

What Is Claimed Is:

1       1. A method for reducing interpath interference between a first path and at least one other  
2       path in a channel delay estimator in a radio receiver comprising the steps of:  
3           generating an estimate of an impulse response of the first path;  
4           generating an estimate of an impulse response of the at least one other path;  
5           calculating the absolute value of the estimate of the first path;  
6           calculating the absolute value of the estimate of the at least one other path; and  
7           subtracting a pulse shape corresponding to the absolute value of the at least one other  
8       path from the absolute value of the estimate of the first path, wherein an amplitude of the pulse  
9       shape is scaled in relation to an estimate of the phase difference between the first path and the at  
10      least one other path.

1       2. The method of claim 1, wherein the radio receiver is a CDMA receiver.

1       3. A method for reducing interpath interference between a first path signal and at least one  
2       other path signal in a channel delay estimator in a radio receiver comprising the steps of:  
3           obtaining a relative phase of the first path signal and the at least one other path signal;  
4           determining, based on the relative phase, an interference component on the first path  
5       signal caused by the at least one other path signal; and  
6           removing the interference component from the first path signal.

1       4. The method of claim 3, wherein the step of obtaining the relative phase of the first path  
2       signal and the at least one other path signal is accomplished using phase information that is  
3       available in a combiner.

1       5. A channel delay estimator in a receiver comprising:  
2           a plurality of correlators, wherein a signal applied to an input port of each of the plurality  
3       of correlators produces a tuned output signal at a corresponding output port of the respective  
4       correlator;

5           means for determining an absolute value of the tuned output signal signal, wherein the  
6       output port of each correlator is coupled to a corresponding input of the absolute value  
7       determining means;  
8           means for determining interference; and  
9           an adder, wherein an output of the interference determining means and an output of the  
10      absolute value determining means are each coupled to a respective input of the adder.

1     6.       The channel delay estimator of claim 5, wherein the interference determining means  
2       comprises:

3           means for obtaining a phase difference between a first signal and at least one other  
4       signal; and  
5           means for calculating an interference component on the first path signal caused by the at  
6       least one other path signal.

1     7.       The channel delay estimator of claim 6, wherein the calculating means comprises logic  
2       capable of evaluating the equation

$$\varepsilon_{12}(i) = a_2 \cdot p(d_1 - d_2) \cdot \cos(\phi_1 - \phi_2) \cdot e^{i\phi_1}.$$

1     8.       The channel delay estimator of claim 6, wherein the means for obtaining the phase  
2       difference between the first signal and at least one other signal uses phase information available  
3       to a combiner in the receiver.

1     9.       A mobile radio terminal having a channel delay estimator in a receiver, the channel delay  
2       estimator comprising:

3           a plurality of correlators, wherein a signal applied to an input port of each of the plurality  
4       of correlators produces a tuned output signal at a corresponding output port of the respective  
5       correlator;

6           means for determining an absolute value of the tuned output signal signal, wherein the  
7       output port of each correlator is coupled to a corresponding input of the absolute value  
8       determining means;

9           means for determining interference; and

10           an adder, wherein an output of the interference determining means and an output of the

11           absolute value determining means are each coupled to a respective input of the adder.

1       10.   The mobile radio terminal of claim 9, wherein the interference determining means

2           comprises:

3           means for obtaining a phase difference between a first signal and at least one other

4           signal; and

5           means for calculating an interference component on the first path signal caused by the at

6           least one other path signal.

1       11.   The mobile radio terminal of claim 10, wherein the calculating means comprises a

2           microprocessor capable of evaluating the equation

$$e_{12}(i) = a_2 \cdot p(d_1 - d_2) \cdot \cos(\phi_1 - \phi_2) \cdot e^{i\phi_1}.$$

1       12.   The mobile radio terminal of claim 10, wherein the means for obtaining the phase

2           difference between the first signal and at least one other signal uses phase information available

3           to a combiner in the receiver.